

ABSTRACT

A refrigeration system and method of refrigeration employ dual refrigeration circuits. Each circuit has an independent compressor, condenser and evaporator. In one refrigeration circuit, the flow of the refrigerant from the condenser to the evaporator is regulated in response to variations in the heat load at the evaporator while, in the other refrigeration circuit, the refrigerant is passed from the condenser to the evaporator at a substantially constant rate of flow. The refrigeration system can be used as a cooling system, including an air conditioning system, and as a heat pump. The evaporator in both circuits may be incorporated within a common heat exchanger as may the two condensers. Additionally, the flow of the refrigerant from the condenser to the evaporator in one refrigeration circuit may be regulated in response to variations in the heat load in the evaporator in that refrigeration circuit by a thermal expansion valve.